SANTA CRUZ BIOTECHNOLOGY, INC.

CD3-ζ (F-3): sc-166275

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The T cell antigen receptor (TCR) recognizes foreign antigens and translates such recognition events into intracellular signals that elicit a change in the cell from a dormant to an activated state. Much of this signaling process can be attributed to a multisubunit complex of proteins that associates directly with the TCR. This complex has been designated CD3 (cluster of differentiation 3). It is composed of five invariant polypeptide chains that associate to form three dimers: a heterodimer of γ and ε chains (γε), a heterodimer of δ and ε chains (δε) and a homodimer of two ζ chains (ζζ) or a heterodimer of ζ and η chains (ζη). The ζ and η chains are encoded by the same gene but differ in their carboxyl-terminal ends due to an alternative splicing event. The γ, ε and δ chains each contain a single copy of a conserved immunoreceptor tyrosine-based activation motif (ITAM). In contrast, the ζ chain contains three consecutive copies of the same motif. Phosphorylated ITAMs act as docking sites for protein kinases such as ZAP-70 and Syk and are also capable of regulating their kinase activity. The crystal structure of ZAP-70 SH2 domains bound to the ζ chain ITAMs has been solved.

CHROMOSOMAL LOCATION

Genetic locus: CD247 (human) mapping to 1q24.2; Cd247 (mouse) mapping to 1 H2.3.

SOURCE

CD3-ζ (F-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 137-163 at the C-terminus of CD3-ζ of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD3-ζ (F-3) is available conjugated to agarose (sc-166275 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166275 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166275 PE), fluorescein (sc-166275 FITC), Alexa Fluor® 488 (sc-166275 AF488), Alexa Fluor® 546 (sc-166275 AF546), Alexa Fluor® 594 (sc-166275 AF594) or Alexa Fluor® 647 (sc-166275 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166275 AF680) or Alexa Fluor® 790 (sc-166275 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166275 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

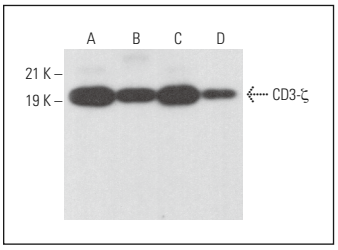
CD3-ζ (F-3) is recommended for detection of CD3-ζ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). CD3-ζ (F-3) is also recommended for detection of CD3-ζ in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for CD3-ζ siRNA (h): sc-29245, CD3-ζ/η siRNA (m): sc-42754, CD3-ζ shRNA Plasmid (h): sc-29245-SH, CD3-ζ/η shRNA Plasmid (m): sc-42754-SH, CD3-ζ shRNA (h) Lentiviral Particles: sc-29245-V and CD3-ζ/η shRNA (m) Lentiviral Particles: sc-42754-V.

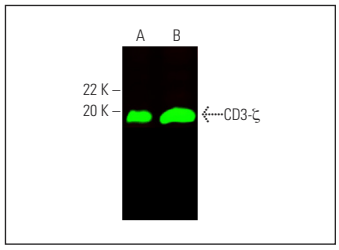
Molecular Weight of CD3-ζ: 22 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, MOLT-4 cell lysate: sc-2233 or SUP-T1 whole cell lysate: sc-364796.

DATA



CD3-ζ (F-3): sc-166275. Western blot analysis of CD3-ζ expression in Jurkat (**A**), SUP-T1 (**B**), MOLT-4 (**C**) and ALL-SIL (**D**) whole cell lysates.



CD3-ζ (F-3) Alexa Fluor® 680: sc-166275 AF680. Direct near-infrared western blot analysis of CD3-ζ expression in ALL-SIL (**A**) and HuT 78 (**B**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Ramello, M.C., et al. 2019. An immunoproteomic approach to characterize the CAR interactome and signalosome. Sci. Signal. 12: eaap9777.
2. Nunoya, J.I., et al. 2019. Chimeric antigen receptor T cell bearing herpes virus entry mediator co-stimulatory signal domain exhibits high functional potency. Mol. Ther. Oncolytics 14: 27-37.
3. Sun, C., et al. 2020. THEMIS-SHP1 recruitment by 4-1BB tunes LCK-mediated priming of chimeric antigen receptor-redirected T cells. Cancer Cell 37: 216-225.e6.
4. Jiang, W., et al. 2021. Bispecific c-Met/PD-L1 CAR-T cells have enhanced therapeutic effects on hepatocellular carcinoma. Front. Oncol. 11: 546586.
5. Mandriani, B., et al. 2022. Development of anti-somatostatin receptors CAR T cells for treatment of neuroendocrine tumors. J. Immunother. Cancer 10: e004854.
6. Potez, M., et al. 2023. Use of phage display biopanning as a tool to design CAR-T cells against glioma stem cells. Front. Oncol. 13: 1124272.

RESEARCH USE

For research use only, not for use in diagnostic procedures.